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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/613,627	07/11/2000	JUERGEN LINDNER	1135-9	1168

22204 7590 01/08/2003

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EXAMINER

TAMAI, KARL I

ART UNIT PAPER NUMBER

2834

DATE MAILED: 01/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/613,627

Applicant(s)

LINDNER, JUERGEN

Examiner

Tamai IE Karl

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 13-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 22 is/are allowed.
- 6) ☒ Claim(s) 1-11, 13-21 and 23-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/161,497.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 12.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-11, 13-21, and 23-29 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. The specification does not contain a full, clear, concise, and exact written description of the coils being distributed in slot over the entire periphery of the stator. The specification does not disclose that the stator is the typical motor of Nasar, nor was the Nasar reference incorporated by reference in the originally filed application. The examiner cites Wildi to show that induction machines can have overlapping windings (figure 13.9b) or windings on salient poles (Figure 13.8). The two winding methods are merely alteranate equivalents of each other. The specification did not specify that only the overlapping coil ends coil were necessary for the disclosed invention, therefore the inclusion is new matter.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3, 5-7, 9, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Maeder (US 4,035,680). Maeder teaches a three phase reluctance motor without electronic switching. The motor having an iron (ferromagnetic) magnetic rotor with offset angular regions 7 of high and low magnetic permeability. The motor having a stator with three phase windings 4 where the slots are partially closed off by the stator 3 itself, where the stator includes angularly offset regions of high and low permeability, and where the number stator teeth is different from the number of rotor teeth by an integral number of poles(one pole/phase winding) in the three phase stator winding. It is inherent that an integral number is a simple number. The three phase stator winding has four poles. Maeder, figure 1, shows the angular regions of the stator being equal to the angular regions on the rotor.

Maeder teaches a reluctance motor with slots distributed around the entire periphery of the stator, with coils positioned within the slots.

***Claim Rejections - 35 USC ' 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maeder (US 4,035,680), in further view of Pouillange(US 4,758,756). Maeder teaches every aspect of the invention except, the number of slots corresponding to the number of angular regions. Pouillange teaches the equivalence of the stator winding being wound on a single pole with a number of angular regions (figure 2) and the winding wound in a plurality of slots (figure 3). It would have been obvious to a person skilled in the art at the time of the invention to construct the motor of Maeder with the number of slots being equal to the number of angular regions because it is within the ordinary skill in the art to choose between known equivalents, and because Pouillange teaches that magnets can be mounted in the slots to create radial excitation flux.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maeder (US 4,035,680). Maeder teaches every aspect of the invention except, the number of angular regions (teeth) on the rotor and stator being greater than the number of poles by a factor of 5. Maeder teaches the number of teeth can be used to adjust the speed of the motor. It would have been obvious to a person skilled in the art at the time of the invention to construct the motor of Maeder with the number of angular regions (teeth) on the rotor and stator being greater than the number of poles by a factor of 5 to control the speed of the motor.

8. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeder, in further view of Neuland. Maeder teaches every aspect of the invention

except for additional rotor and stator alternating in succession, where the additional rotors and stators have flux guidance regions which differ alternately in the main direction of rotation. Neuland teaches a reluctance device with a rotating magnetic field on the stator driving a reluctance rotor, where the device includes additional rotors 3 and stators 2 with flux guidance regions which differ alternately in the main direction of rotation(2/3 nonmagnetic, 2a/3a magnetic) to change the speed and torque characteristics of the output shaft. It would have been obvious to a person skilled in the art at the time of the invention to construct the motor of Maeder with additional rotors/stator as in Neuland to change the speed and torque of the output.

9. Claims 13, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeder, in further view of Nagasaka. Maeder teaches every aspect of the invention except rotor external to the stator with the permanent magnet flux guides polarized in opposite directions. Nagasaka teaches the rotor external to the stator with a permanent magnet flux guide having alternating. It would have been obvious to a person skilled in the art at the time of the invention to construct the motor of Maeder with an small, external rotor for use in disk drives and robotic operations.

10. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maeder in view of Nashiki. Maeder teaches every aspect of the invention except, the flux guidance regions on the rotor and stator being twice as wide as they are high. Nashiki suggest(Figure 2) the poles on the rotor and stator being half as high as they are wide.

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It would have been obvious to a person skilled in the art at the time of the invention to construct the motor of Maeder with the rotor and stator poles being half as high as they are wide because Nashiki suggests the poles are half as high as they are wide and because finding the optimum range for the rotor/stator poles involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

11. Claims 17, 19, 23-25, 27, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeder, in further view of Epstein. Maeder teaches every aspect of the invention, except a ferromagnetic, floating flux guidance rotor which floats on the shaft via bearings and a squirrel cage winding. Epstein teaches a reluctance motor having a floating flux guidance rotor 6 which floats on the bearings 8/9 on the shaft and which is made from ferromagnetic plates(col. 2, lines 21,22) to returning lines of force to the rotary field. Epstein teaches alternating squirrel cage windings and ferromagnetic material, where the flux guidance regions are inclined or skewed(see figure 1) to reduce vibrations in the rotor. It would have been obvious to a person skilled in the art at the time of the invention to construct the reluctance motor of Maeder with the floating return of Epstein to reduce the inertia of the rotor without reducing the torque of the motor to improve the transient performance.

12. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maeder. Maeder teaches every aspect of the invention, except the sheets which are insulated from each other. The examiner takes Official notice that laminated rotor are formed

from electric steel which is insulated to reduce eddy current losses. It would have been obvious to a person skilled in the art at the time of the invention to construct the reluctance motor of Maeder with the laminations being insulated electrical steel because it is well known in the art that insulating the laminated electrical steel in a rotor reduced eddy current losses.

13. Claim 21 and 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maeder, in further view of Buess et al.(Buess). Maeder teaches every aspect of the invention, except a resolver or transducer on the shaft. Buess teaches a resolver 16 to determine the position of the rotor 32 in a reluctance motor. It would have been obvious to a person skilled in the art at the time of the invention to construct the reluctance motor of Maeder with the resolver of Buess to determine the position of the rotor during operation of the motor.

14. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maeder. Maeder and Epstein teach every aspect of the invention, except the sheets which are insulated from each other. The examiner takes Official notice that laminated rotor are formed from electric steel which is insulated to reduce eddy current losses. It would have been obvious to a person skilled in the art at the time of the invention to construct the reluctance motor of Maeder and Epstein with the laminations being insulated electrical steel because it is well known in the art that insulating the laminated electrical steel in a rotor reduced eddy current losses.



***Allowable Subject Matter***

15. Claim 22 is allowed.

***Response to Arguments***

16. Applicant's arguments filed 1/17/02 have been fully considered but they are not persuasive. The Applicant's reliance on *In re Lange* is not persuasive because the Applicant is including structure not just "function, theory, or advantage", therefore the amendment to the specification is new matter. The Applicant's argument that the windings do not create a rotary magnetic field is not persuasive. The Applicant is direct to figures 4-9 showing the rotating field, without which the rotor would not rotate. The Applicant's arguments regarding the windings of Maeder being wound on poles is not persuasive because the windings of Maeder read on the Applicant's overbroad limitation of the windings being in slots over the entire periphery of the stator.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl I.E. Tamai whose telephone number is (703) 305-7066. The examiner can be normally contacted on Monday through Friday from 8:00 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Nestor Ramirez, can be reached at (703) 308-1371. The facsimile number for the Group is (703) 305-3432. Any inquiry relating to the status of this application should be directed to the Group at (703) 308-0956.

Karl I Tamai  
PRIMARY PATENT EXAMINER  
January 6, 2003

  
KARL TAMAI  
PRIMARY EXAMINER